IMPORTANT: Refer to www.extron.com for the complete user guide and installation instructions before connecting the product to the power source.

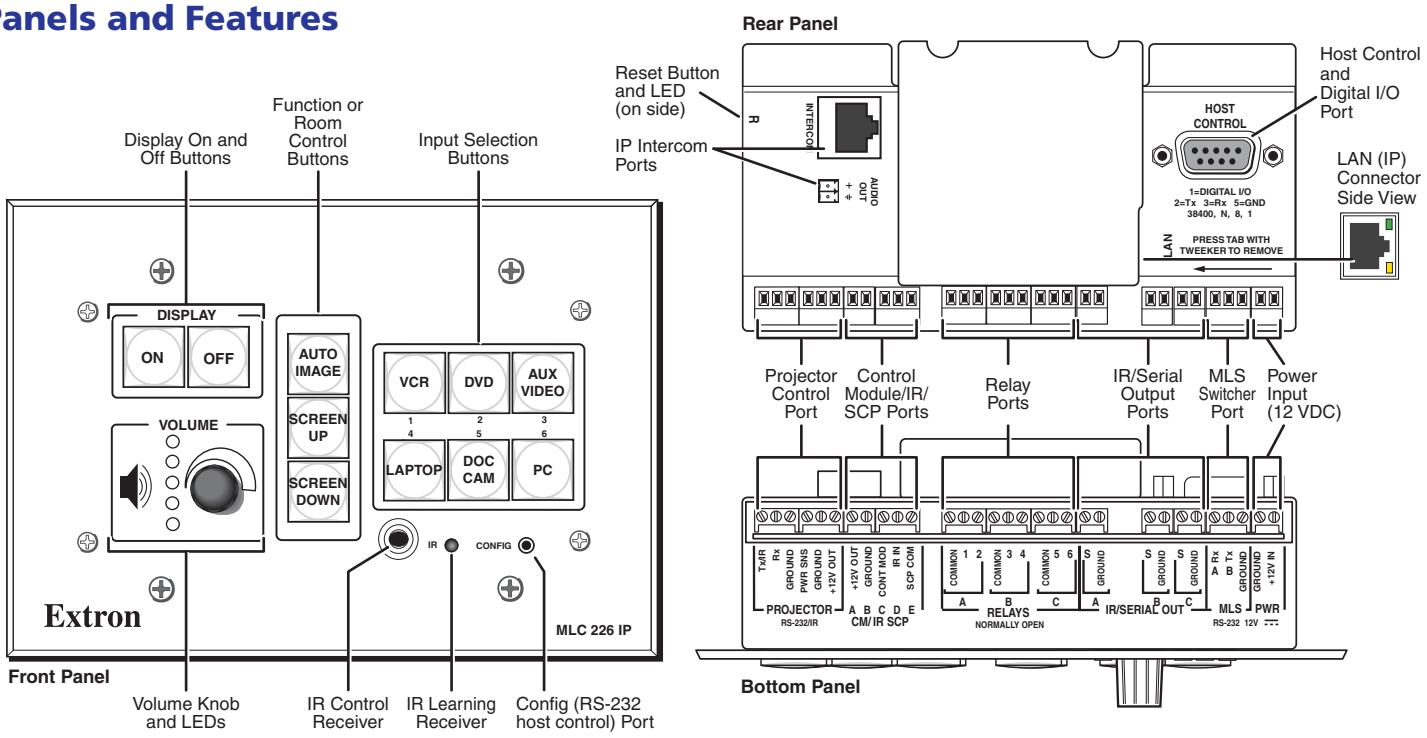
MLC 226 IP Series • Setup Guide

The Extron MLC 226 IP Series MediaLink® Controller integrates Ethernet connection into AV systems to allow users to remotely control, monitor, and troubleshoot AV equipment, including display devices and switchers. It includes an embedded web server, multiple serial ports, relays, and configurable digital I/O ports for use in applications that require control and monitoring of multiple devices within an AV system.

The MLC 226 IP series of controllers are configured using the free Extron Global Configurator (GC) software. The MLCs integrate seamlessly with Extron GlobalViewer® Enterprise (GVE) software and the free GlobalViewer web-based AV resource management software for remote control applications. Global Configurator and other useful software applications are available at www.extron.com.

A checklist of basic setup steps is provided at the end of this guide. For additional information see the help files and the *MLC 226 IP Series User Guide*, available at www.extron.com.

Panels and Features

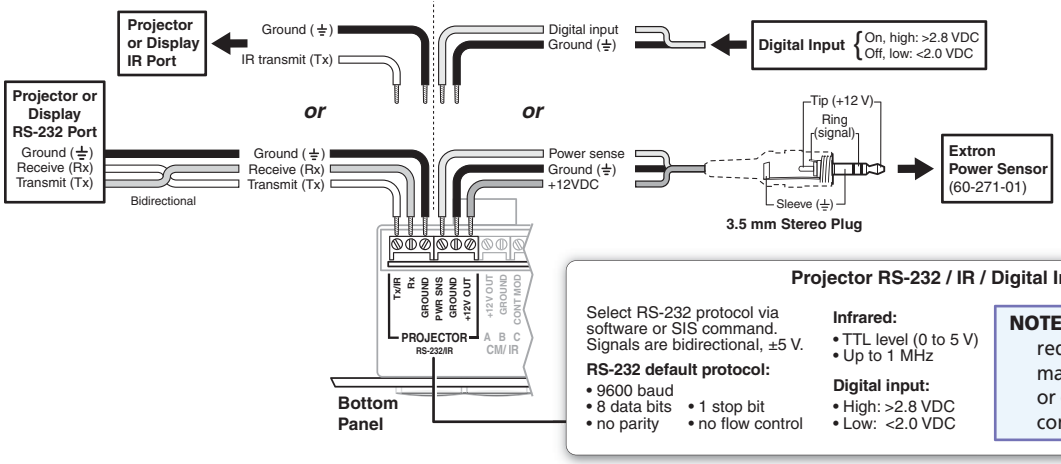


Cabling and Features

Attach cables using the following wiring diagrams as a guide. Full details are available in the *MLC 226 IP Series User Guide*.

CAUTION: Installation and service must be performed by authorized personnel only.

Control — Projector or Display



Projector RS-232 / IR / Digital Input Port(s)

Select RS-232 protocol via software or SIS command. Signals are bidirectional, ±5 V.

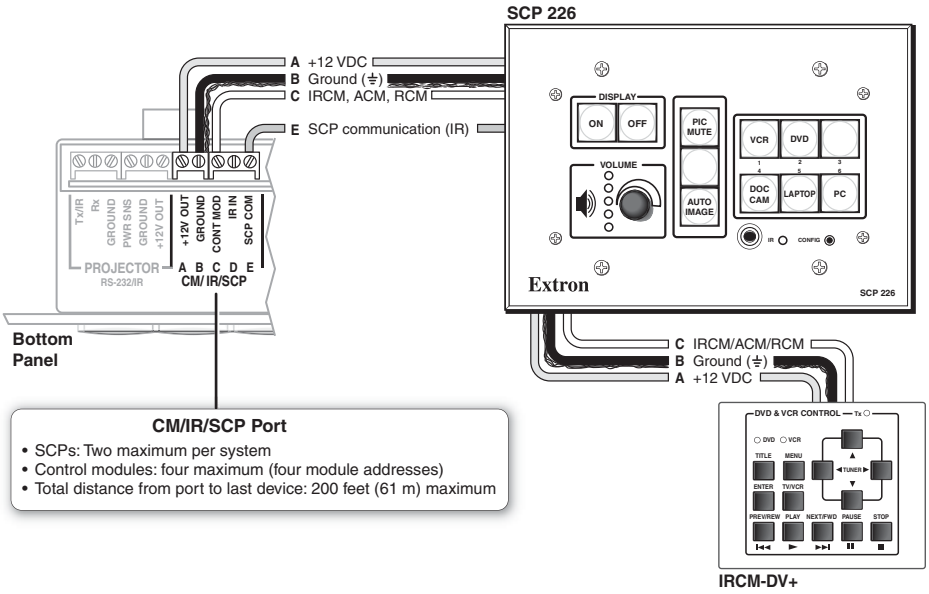
RS-232 default protocol:
- 9600 baud
- 8 data bits
- no parity
- 1 stop bit
- no flow control

Infrared:
- TTL level (0 to 5 V)
- Up to 1 MHz

Digital input:
- High: >2.8 VDC
- Low: <2.0 VDC

NOTE: Each projector or display may require different wiring. See the manual that came with the projector or display, or the Extron device driver communication sheet for details.

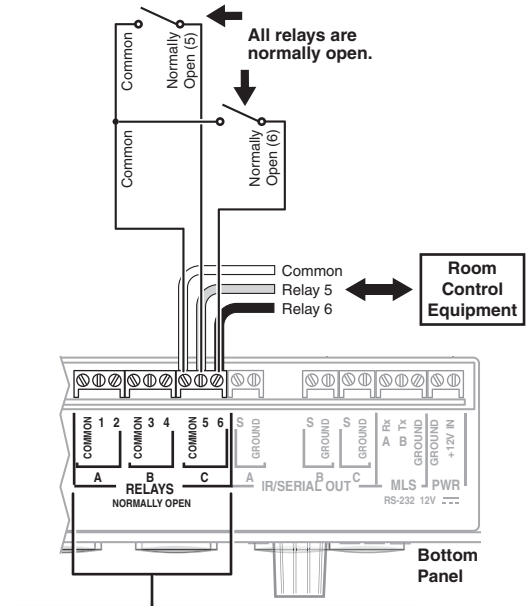
Control — Control Modules, SCP Control Panels (CM/IR/SCP Port)



CM/IR/SCP Port

- SCPs: Two maximum per system
- Control modules: four maximum (four module addresses)
- Total distance from port to last device: 200 feet (61 m) maximum

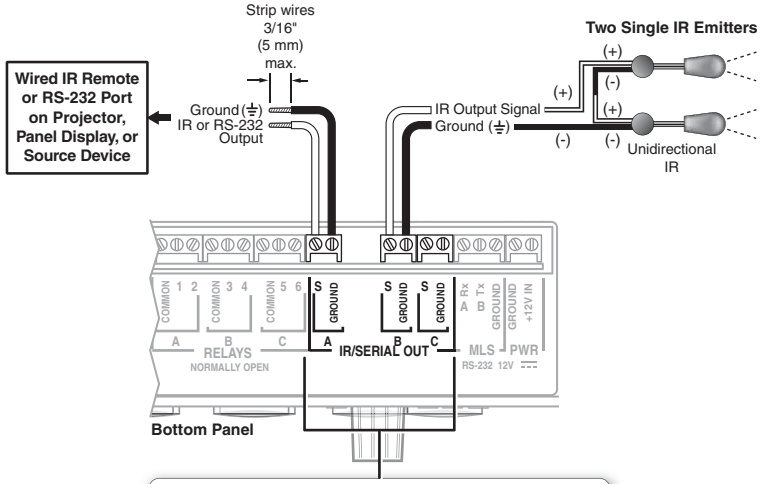
Control — Relay



Relays

- Connect devices for contact control.
- Do not exceed a total of 24 VDC at 1 A for each port.

Control — IR/Serial Output

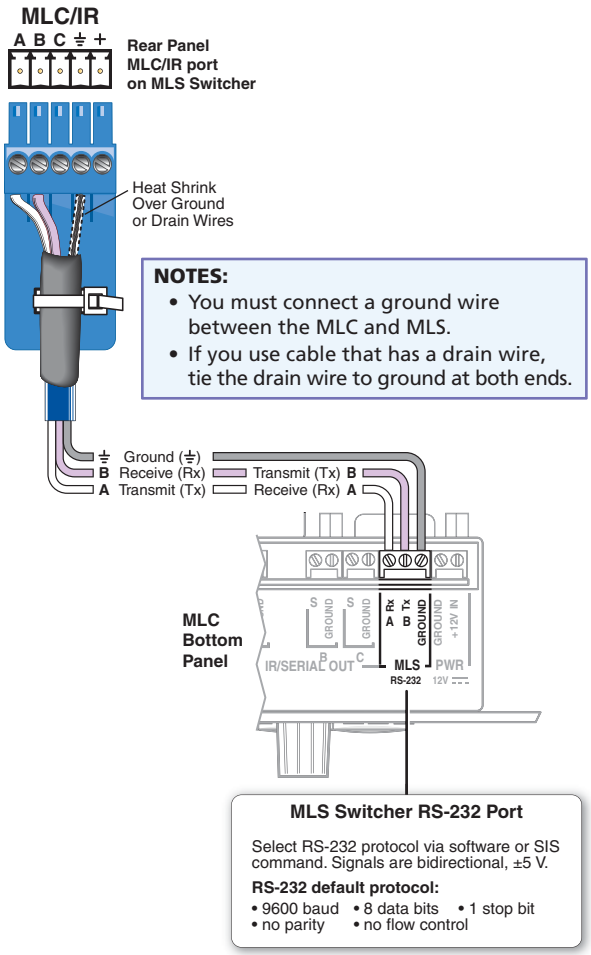


IR/Serial Ports

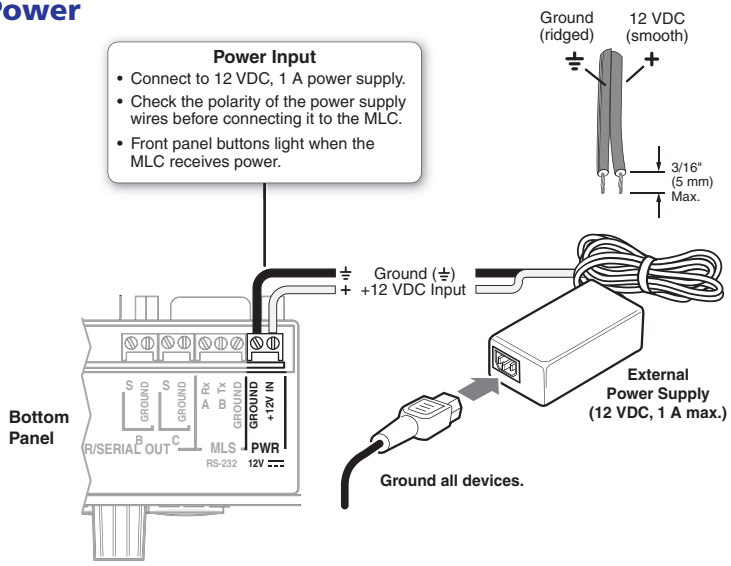
Output options:

- IR (with or without carrier signals, 0 to +5 VDC)
- unidirectional RS-232 (-5 to +5 VDC; default protocol: 9600 baud, no parity, 8 data bits, 1 stop bit, no flow control

Control — MLS Switcher



Power



Control — LAN (Ethernet)

Straight-through Cable
(for connection to a switch, hub, or router)

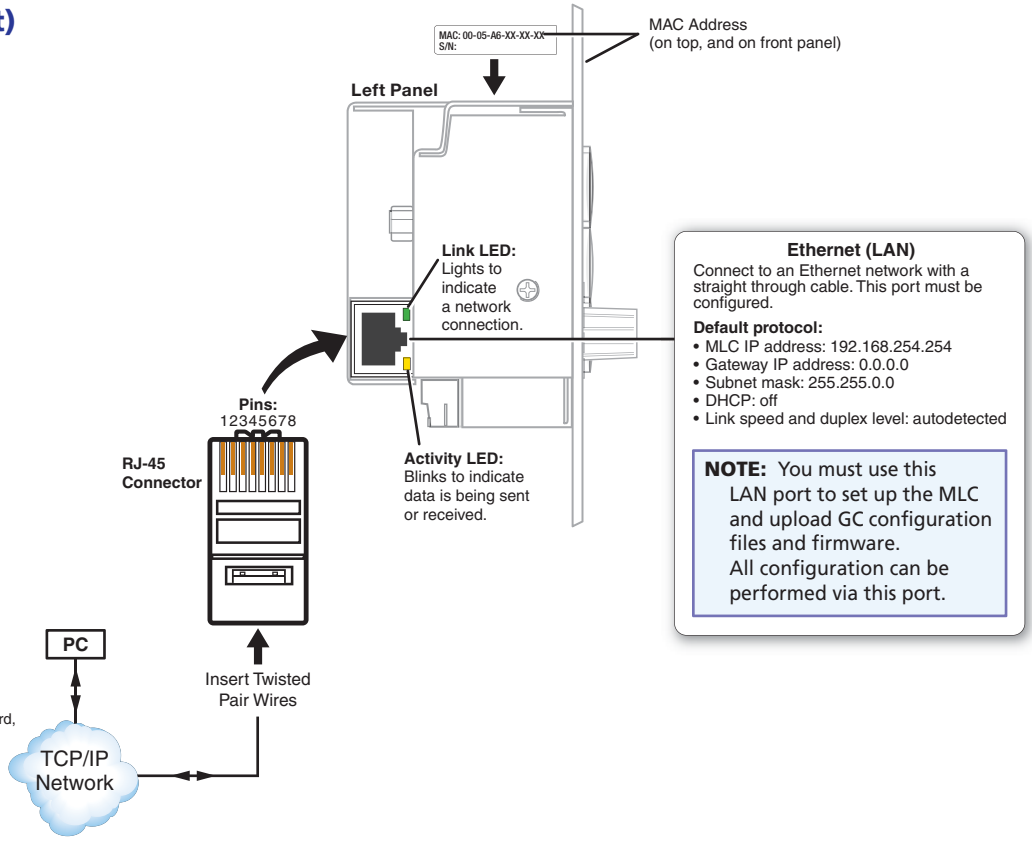
End 1 Pin	End 1 Wire Color	End 2 Pin	End 2 Wire Color
1	white-orange	1	white-orange
2	orange	2	orange
3	white-green	3	white-green
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	green
7	white-brown	7	white-brown
8	brown	8	brown

Both ends use the TIA/EIA T568A wiring standard.

Crossover Cable
(for direct connection to a PC)

End 1 Pin	End 1 Wire Color	End 2 Pin	End 2 Wire Color
1	white-orange	1	white-green
2	orange	2	green
3	white-green	3	white-orange
4	blue	4	blue
5	white-blue	5	white-blue
6	green	6	orange
7	white-brown	7	white-brown
8	brown	8	brown

Wire end 1 following the TIA/EIA T568A wiring standard, wire end 2 with the T568B wiring standard.



Control — Serial (Host Control, Config) and Digital I/O

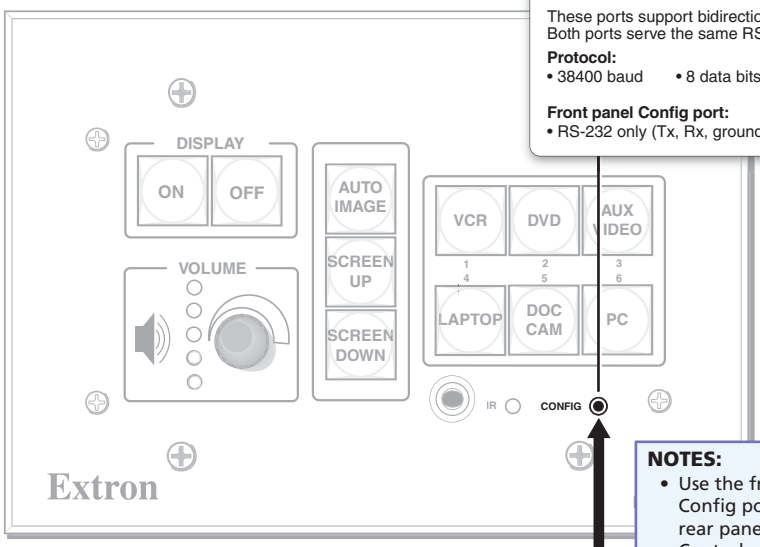
Host Control and Config Serial (RS-232) Ports

These ports support bidirectional RS-232 (-5 - +5 VDC) communication.
Both ports serve the same RS-232 function, but operate independently of each other.

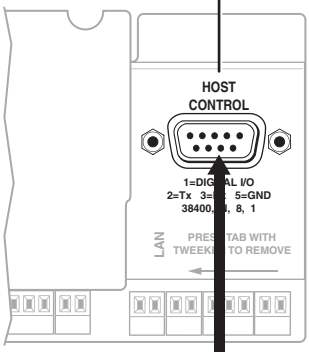
Protocol:
• 38400 baud • 8 data bits • 1 stop bit • no parity • no flow control

Front panel Config port:
• RS-232 only (Tx, Rx, ground)

Rear panel Host Control port:
• RS-232 and digital I/O

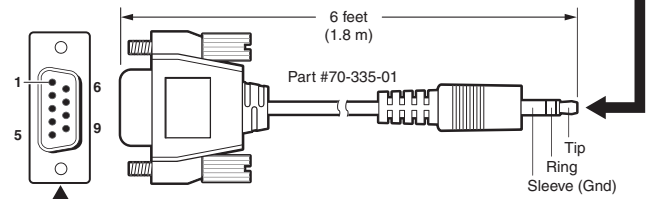


Front Panel



Rear Panel

RS-232 Port on a PC

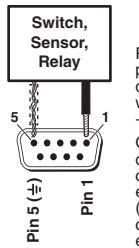


RS-232 Port on a PC

9-pin D	Connection	TRS Plug
Pin 2	Computer Rx line	Tip
Pin 3	Computer Tx line	Ring
Pin 5	Computer signal ground	Sleeve

NOTES:

- Use the front panel Config port and rear panel Host Control ports only for sending basic SIS commands (such as those for IP setup and troubleshooting) and checking unit information and responses.
- You must use the LAN port (not the Config or Host port) to set up the MLC and upload GC configuration files or firmware.



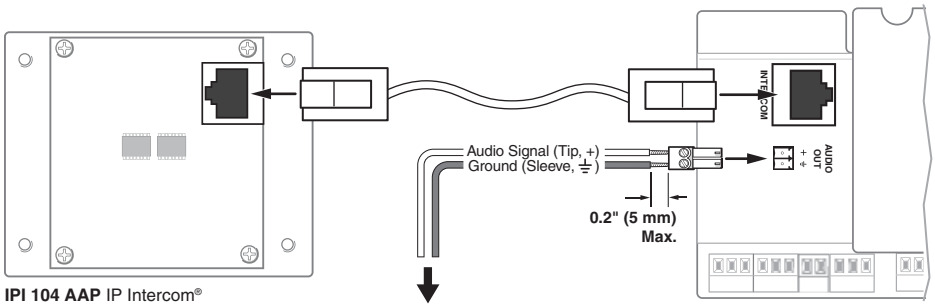
Host Config Port Digital I/O

Pins 1 and 5 of this port can be used as a digital input or output, with or without +5 VDC pull-up.

Once configured, the digital input or output can monitor or trigger events and functions (toggle relays, issue commands, send e-mail).

Pin	RS-232 Function	Description
1	Digital I/O	Digital input/output
2	Tx	Transmit data
3	Rx	Receive data
4	–	No connection
5	Gnd	Signal ground
6, 7	–	No connection
8, 9	–	No connection

Communication — IP Intercom



IPI 104 AAP IP Intercom®
Rear Panel

Speaker, Audio System, or Paging System

MLC 226 IP Series
Rear Panel (left side)

About Global Configurator (GC)

What It Does

Global Configurator is the software tool for setting up an MLC and the system it controls.
Global Configurator:

- Loads device drivers and uses commands from them for controlling other products
- Creates a single configuration file containing all the settings for the MLC and the products it interacts with in the AV system
- Generates a graphical user interface called GlobalViewer that is uploaded to the MLC (a GlobalViewer host device) along with the completed configuration and can be accessed as a web page

By using GlobalViewer, users can manage, monitor, and control Extron and third-party equipment such as projectors, displays, computer monitors, Blu-ray™ players, and DVD players.

What To Set Up in GC

Use GC software to create a configuration that tells the MLC how its ports will function; how to control other products; which touchpanels to interact with; what to monitor; when to do things; and whom to notify, how, when, and under what circumstances.

Configuration

1. Download and install the latest versions of the following:
   - **Global Configurator software** — for setting up the MLC and creating a single system configuration file
   - **Device driver package** — for use with GC, to make control of other devices possible

   All are available from **www.extron.com** or on the included Extron Software Products Disc.
2. Obtain IP address and subnet mask information for the MLC from the network administrator.
3. Cable devices to the MLC (see"**Cabling and Features**" in this guide), then power on all the devices.
4. Connect the MLC to a network, power it on, and use ARP (see "**Network Configuration Using ARP**" below) to set the IP address for the unit.
5. Using Global Configurator, create a project, configure the MLC and other IP Link devices, and upload the configuration to the MLC.
6. Launch the GlobalViewer interface and test the configuration and the system.

NOTE: Additional information and step-by-step instructions on configuration tasks are available in the *Global Configurator Help* file. The *Global Configurator Help* file includes an introduction to the software and how to start a GC project.

Resources

Obtaining Control Drivers

Extron provides an extensive selection of device drivers in the driver package available on the Extron website. If the system requires a control driver that is not part of the driver package, you have additional options:

- Request a new serial (RS-232) driver from Extron.
- Create your own custom IR device driver using Extron IR Learner software. Follow the directions in the *IR Learner Help* file to create a driver by using the remote control for that device and the IR receiver port on the front panel of the MLC.

Instructions, Information, and Assistance

For additional information see the help files and the *MLC 226 IP Series User Guide*, available at **www.extron.com**. If you have questions during installation and setup, call the **Extron S3 Sales & Technical Support Hotline** or the **Extron S3 Control Systems Support Hotline.**

Configuring for Network Communication

Network Configuration Options

When you power on the MLC for the first time, you have a choice of several ways to set up the IP address:

- **Use the ARP (address resolution protocol) command** — See the instructions below.
- **Use a Web browser** — See the *MLC 226 IP Series User Guide*.
- **Use the Global Configurator software** — See the *Global Configurator Help* file.
- **Use SIS commands via Telnet** — See the *MLC 226 IP Series User Guide*.

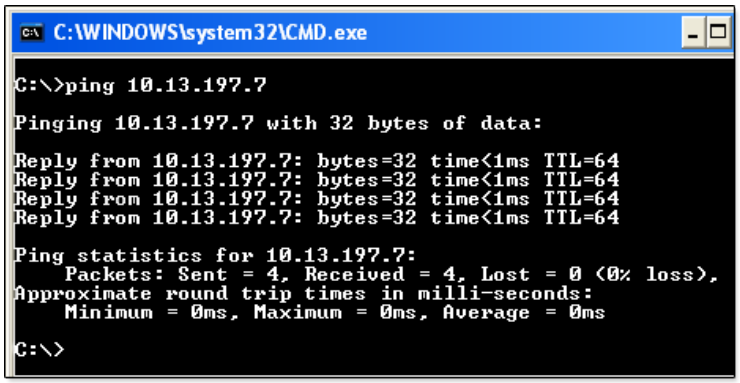
Network Configuration Using ARP

Use ARP to configure the IP address as follows:

1. Obtain a valid IP address for the MLC from the network administrator.
2. Obtain the MAC address of the MLC from the label on its rear panel. The MAC address should have this format: 00-05-A6-xx-xx-xx.
3. Connect the PC and the MLC to the same subnetwork.

4. At the PC, access the command prompt, then enter the `arp –s` command. Type in the desired new IP address for the unit and the MAC address of the unit (listed on the rear panel of the MLC). For example:
   `arp –s 10.13.197.7 00-05-A6-03-69-B0`
5. Execute a ping command by entering "`ping`" followed by a space and the new IP address at the command prompt. For example:
   `ping 10.13.197.7`

   The response should show the new IP address, as shown in the figure at right.



Mounting

Attach cables using the preceding pages as a guide, then securely mount the MLC and other devices into the wall or furniture. Optional mounting kits (see part numbers at right) are available for use with the MLC. Read the instructions and UL guidelines that come with the any mounting kit for installation procedures.

Optional mounting kits	Part number
SMB 103 Three-gang Surface Mount Box (black)	60-641-02
SMB 105 Five-gang Surface Mount Box (black)	60-643-02
MLM 226 7GWP Seven-Gang Wall Mounting Kit (black)	70-340-02
MLM 226 L Replacement Lectern Mounting Kit (black, white)	70-342-02, -03
MLM 226 LAAP Replacement Lectern Mounting Kit with AAP opening (black)	70-343-02

Setup Checklist: How to Proceed With Installation

Get Ready

- ☐ Familiarize yourself with the features of the MLC 226 IP.
- ☐ Download and install the latest version of the Extron Global Configurator (GC) software and the latest driver package (available from www.extron.com or on the Extron Software Products Disc.)
- ☐ Obtain IP setting information for the MLC from the network administrator.
- ☐ Obtain model names and setup information for devices the MLC will control.

Perform Physical Installation

- ☐ Mount the unit.
- ☐ Cable devices to ports on the MLC.
- ☐ Connect power cords and turn on the devices in the following order: output devices (projectors, monitors, speakers), the MLC, a PC (for setup), SCP panel (if desired), then all input devices (such as DVD players).

Configure the MLC

- ☐ Connect the PC and the MLC to the same Ethernet subnetwork and use ARP via Telnet, Extron DataViewer, or a similar application to configure the MLC for network communication.
- ☐ Create a new GC project and configure the MLC. See the *Global Configurator Help* file.
- ☐ Test the system.

If you have questions during installation and setup, you can call the **Extron S3 Sales & Technical Support Hotline** or the **Extron S3 Control Systems Support Hotline**.

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